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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,842

09/13/2006

Koji Masaki

Q96962

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23373 7590 06/23/2011
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EXAMINER

KRYLOVA, IRINA

ART UNIT

PAPER NUMBER

1764

NOTIFICATION DATE

DELIVERY MODE

06/23/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/598,842	Applicant(s) MASAKI, KOJI	
	Examiner IRINA KRYLOVA	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed by Applicant on May 5, 2011 has been fully considered. The amendment to instant claim 1 and cancellation of instant claim 6 are acknowledged. Specifically, instant claim 1 has been amended to include the limitation of the diene of copolymer (B) being a butadiene. This limitation was taken from instant claim 6. The rejections of previous claim 6 become the rejections of amended claim 1. In light of the amendment filed by Applicant on May 5, 2011, the previous objections and rejections except those cited below, are withdrawn. The Declaration under 37 CFR 1.132 filed by Applicant on May 5, 2011 has been fully considered. The following action is made final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-12, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039).

3. The rejection is adequately set forth on pages 5-8 of an Office Action mailed on December 6, 2010 and is incorporated here by reference.

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4. Claims 1-5, 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039) in view of **Sasaka et al** (US 6,376,593).

5. The rejection is adequately set forth on pages 8-10 of an Office Action mailed on December 6, 2010 and is incorporated here by reference.

6. Claims 1-5, 7-11, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744).

7. The rejection is adequately set forth on pages 10-12 of an Office Action mailed on December 6, 2010 and is incorporated here by reference.

8. Claims 1-5, 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) in view of **Yokoyama et al** (US 5,959,039).

9. The rejection is adequately set forth on pages 12-14 of an Office Action mailed on December 6, 2010 and is incorporated here by reference.

10. Claims 1-5, 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Masaki et al** (WO 2004/011545). It is noted that while the rejection is made over WO 2004/011545 for date purposes, in order to elucidate the examiner's position the

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corresponding US equivalent viz. US 7,211,630 is relied upon. All citations to paragraph numbers, etc., below refer to US 7,211,630.

11. The rejection is adequately set forth on pages 14-16 of an Office Action mailed on December 6, 2010 and is incorporated here by reference.

12. Claims 1, 3-5, 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Masaki et al** (WO 2004/011545) in view of **Yokoyama et al** (US 5,959,039). It is noted that while the rejection is made over WO 2004/011545 for date purposes, in order to elucidate the examiner's position the corresponding US equivalent viz. US 7,211,630 is relied upon. All citations to paragraph numbers, etc., below refer to US 7,211,630.

13. The rejection is adequately set forth on pages 16-18 of an Office Action mailed on December 6, 2010 and is incorporated here by reference.

Response to Arguments

14. Applicant's arguments filed on May 5, 2011 have been fully considered. In light of the amendment filed by Applicant on May 5, 2011, previous rejections not cited above are withdrawn, thus rendering Applicant's arguments moot.

15. Regarding the rejections of claims 1-5, 7-12, 15-16 under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039) and claims 1-5, 7-16 under 35

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U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039) in view of **Sasaka et al** (US 6,376,593), Applicant argues that **Yokoyama et al** discloses at col. 4, lines 12-14 that 25 or more value of $S+(V/2)$ should be avoided because deterioration in the low-temperature flexibility occurs, thus teaching away from using a copolymer (C) comprising 20-60% mass of an aromatic vinyl compound and having a vinyl bond content in the diene portion of 10-80% mass, because when S is 20-60 and V is 10-80, $S+(V/2)$ is 25 or more; **Sasaka et al** fails to make up for deficiencies of **Yokoyama et al**.

16. Examiner disagrees.

1) For the high molecular weight copolymer, since **Yokoyama et al** discloses the styrene content being less than 30%, therefore, given the styrene content is 19.999% and vinyl bond is 10% (which is the same as claimed in the instant invention), the ratio of $S+(V/2) = 19.999 + 10/2$ is 24.999, i.e. still less than 25. At the same time the value of styrene content being 19.999% of **Yokoyama et al** is very close to the value of styrene content being 20% as claimed in the instant invention; it is the examiner's position that the values are close enough that one of ordinary skill in the art would have expected the same properties. Case law holds that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

2) Further, since **Yokoyama et al** discloses that both low molecular weight copolymer and high molecular weight copolymer contain less than 30% of bound styrene,

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therefore, it would have been obvious that the difference in aromatic content between high molecular weight copolymer and low molecular weight copolymer will not be more than 30%mass.

17. Regarding the rejections of claims 1-5, 7-11, 13-16 under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) and claims 1-5, 7-16 under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) in view of **Yokoyama et al** (US 5,959,039), Applicant argues that **Kawauzra et al** does not disclose a rubber composition comprising both the copolymer (B) having a weight average molecular weight of more than 50,000 but no more than 300,000 and the copolymer (C) having a weight average molecular weight of not less than 300,000, as claimed; wherein in the Declaration under 37 CFR 1.132 filed on May 5, 2011, Applicant has shown that combination of the copolymer (B) having a weight average molecular weight of more than 50,000 but no more than 300,000 and the copolymer (C) having a weight average molecular weight of not less than 300,000 provides compositions having improved properties, such as processability, storage modulus and loss factor.

18. Examiner disagrees.

1) **Kawauzra et al** teaches that SBR may be any SBR used as a rubber component for various rubber applications (col. 11, lines 58-65) and shows specific examples of SBR having a weight average molecular weight of 867,000; styrene content of 47%wt and vinyl content of 75%mol (Table V-1) or weight average molecular weight of 320,000;

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styrene content 41%wt and vinyl content of 37%mol (Table V-2). Thus, it appears that SBR component A-2 above corresponds to high molecular weight component C) as claimed in the instant invention. On the other side, the block copolymer component B) of **Kawauzra et al** having the molecular weight of 50,000 to 800,000 appears to correspond to low molecular weight component B) having molecular weight of 50,000 to 300,000 as claimed in the instant invention. Thus, **Kawauzra et al** teaches that the block copolymer component may have a weight average molecular weight as low as 50,000. Even though **Kawauzra et al** does not provide a specific example of using SBR having Mw of 320,000 with a block copolymer having Mw of less than 300,000, however, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures “including unpreferred embodiments” must be considered. In re Lamberti 192 USPQ 278, 280 (CCPA 1976) citing In re Mills 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a block copolymer having Mw of 50,000 to 300,000 in combination with SBR having Mw of 320,000 as well given that this range of Mw of 50,000 to 300,000 of is within the teachings of **Kawauzra et al** (Mw of 50,000 to 800,000) as well.

2) Referring to the Declaration under 37 CFR 1.132, it is noted that criticality of combination of the copolymer (B) having a weight average molecular weight of more than 50,000 but no more than 300,000 and the copolymer (C) having a weight average molecular weight of not less than 300,000 for improving processability, storage modulus and loss factor, appears to be not clear. For example, Comparative Example D having

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Mw of copolymer (B) within the claimed range (i.e. 120,000) and Mw of copolymer (C) lower than that claimed in the instant invention (i.e. 250,000) appears to have processability index, storage modulus and loss factor very close to the values of those of the composition of Example 3 (having the values for Mw of copolymers (B) and (C) within the ranges as closed in the instant invention) shown in Table B of the Declaration. Thus, processability index of Comparative example D is 95 versus 97 for Example 3; Storage modulus of Comparative Example D is 117 versus 118 for Example 3; and Loss factor for Comparative Example D is 83 versus 82 for Example 3. Therefore, it is examiner's position that those values are too close to each other to be persuasive in criticality of using copolymers (B) and (C) having the claimed ranges of Mw's.

3) Further, the values for Mw of copolymer (B) claimed in the instant invention are 50,000 to 300,000 and Mw of copolymer (C) claimed in the instant invention is 300,000 or more, which ranges appear to be very broad. On the other hand, the inventive values for Mw's provided in the Declaration are only 80,000 and 120,000 for copolymer (B) and only one value of Mw for copolymer (C), i.e. 450,000, providing Examples 3 and 4; out of which: the properties for one of those examples (Example 3) are very close to the properties of a comparative example (Comparative Example D), as discussed above. Furthermore, the properties of the composition, i.e. processability, Storage modulus, Loss factor, are not cited in instant claims.

19. Regarding the rejection of claims 1-5, 7-16 under 35 U.S.C. 103(a) as being unpatentable over **Masaki et al** (WO 2004/011545) and claims 1, 3-5, 7-16 under 35

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U.S.C. 103(a) as being unpatentable over **Masaki et al** (WO 2004/011545) in view of **Yokoyama et al** (US 5,959,039), Applicant argues that **Masaki et al** discloses at col. 3, lines 15-23 that “by using styrene-isoprene copolymer instead of styrene-butadiene copolymer are further improved the wear resistance, fracture properties, wet-skid resistance and dry gripping property because the styrene-isoprene copolymer is high in tackiness as compared with the conventional styrene-butadiene copolymer”; thus, one of ordinary skill in the art would not be directed to using butadiene as diene in copolymer (B).

20. Examiner disagrees.

1) Isoprene is 2-methyl-1,3-butadiene, therefore, it appears to be a butadiene derivative, i.e. broadly appears to be a butadiene. Since isoprene is a butadiene derivative, therefore, it would have been obvious to a skilled artisan to use a non-substituted butadiene as well since it would have been obvious to substitute one equivalent for another. Case law holds that the selection of a known material based on its suitability for its intended use supports prima facie obviousness. *Sinclair & Carroll Co vs. Interchemical Corp.*, 325 US 327, 65 USPQ 297 (1045). Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958).

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2) Though **Masaki et al** recite that styrene-isoprene has higher tackiness than styrene-butadiene, however, given one of ordinary skill in the art is not interested in improving tackiness of the composition, therefore, it would have been obvious to the one of ordinary skill in the art to use the unsubstituted butadiene, as the closest derivative and equivalent of isoprene, in the copolymer (B) of **Masaki et al** as well.

Further, since instant claim 1 does not specify any properties of the composition and both instant specification and the Declaration recite the object of the invention as being the improvement in Storage modulus and loss factor, rather than improvement in tackiness (see [0004] of instant specification), therefore, based on the teachings of **Masaki et al**, it would have been obvious to a one of ordinary skill in the art to substitute the isoprene for butadiene in the copolymer (B) of **Masaki et al** and thus to arrive at the present invention. Furthermore, neither instant specification, nor Declaration showed any criticality of using butadiene versus isoprene as diene in copolymer (B) for improving the Storage modulus and Loss factor of the composition.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IRINA KRYLOVA whose telephone number is (571)270-7349. The examiner can normally be reached on Monday-Friday 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Irina Krylova/
Examiner, Art Unit 1764

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1764

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